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REMARKS

Initially, Applicants would like to advise the Examiner of co-pending application, U.S. Serial No. 10/658,082, filed on even date herewith, which contains claims to a related invention.

Claims 1-13 and 15 remain pending in the present application, with claims 6 and 7 having been withdrawn subject to an election of species requirement by the Examiner, issued May 10, 2004.

The amendment to the specification is submitted to correct a typographical error.

Claim 1 is amended to correct the typographical error noted in the amendment to the specification, described above, to more clearly specify the nature of the polymer adhesives of the present invention, and to incorporate the limitation of original claim 14, now canceled; claim 10 is amended commensurate with claim 1; claim 12 is amended to correct a typographical error; and claim 15 is amended to revise dependency in view of the cancellation of claim 14. New claim 16 finds basis at page 18, lines 21-25; new claim 17 finds basis at page 16, lines 11-18; and new claim 18 finds basis at page 15, lines 15-17. No new matter is added.

Election of Species Requirement

Applicants acknowledge their election of Species A, claims 1-5 and 8-15, without traverse, but hereby request rejoinder of the non-elected claims in view of the reasons for patentability as to the elected claims, discussed below.

Applicants believe that claim 1 is an allowable generic claim, and since claims 6 and 7 are ultimately dependent upon claim 1, the election of species requirement should be withdrawn and the non-elected species set forth in those claims should be searched and considered.

Rejection under 35 U.S.C. §103(a)

Claims 1-5 and 8-15 stand rejected under 35 U.S.C. §103(a) as obvious over WO 95/14806 (WO '806), in view of either Scott et al (U.S. Patent No. 4,798,644), Reith (U.S. Patent No. 4,939,036) and optionally in view of Cross (U.S. Patent No. 4,731,143). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

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Discussion of the Claimed Invention

The claimed invention is directed to a process for preparation of a tufted polyamide-type fiber carpet comprising providing a primary backing tufted with yarn comprised of at least 85% by weight of fibers selected from the group consisting of nylon fibers, wool fibers, and blends thereof, said tufted primary backing having a carpet side and an opposite back side, providing a molten polymer adhesive having a melt index of at least 150 according to ASTM D-1238 @190 °C with a weight of 2.16 Kg on the back side of the tufted primary backing, said polymer adhesive comprising at least 85% by weight of one or more ethylene copolymers or terpolymers each comprised of 50 to 95 weight % of ethylene, and 5-50 weight % of at least one carboxylic acid comonomer, compressing said tufted primary backing and said molten polymer adhesive layer under a moving belt that applies a pressure of at least 1 N/cm² for a period of at least 5 seconds during which time the polymer adhesive remains in a molten state, and cooling said molten polymer adhesive to a temperature below the melting point of said molten adhesive (claim 1).

One important aspect of the presently claimed invention is the use of a polymer adhesive which has a relatively low viscosity (high melt index). An object of the present invention is to improve currently existing tufted carpets, which have a tendency to lose carpet fibers due to abrasive wear, such as heavy foot traffic, rolling of chair casters and movement of furniture and equipment over the surface. At the time of the present invention, existing tufted carpets would lose many individual carper fibers from the carpet tufts, in spite of the fact that the entire tufts were not pulled from the backing. (specification, page 2, line 33, bridging to page 3, line 15). The Lisson Tretrad test has been developed to measure and evaluate the tendency of a carpet to lose individual fibers (page 3, lines 16-33).

According to the present invention, the polymer adhesive is applied in a manner that allows the adhesive to impregnate the fiber networks of the tufts and contact the overwhelming majority of the fibers in the tufts (page 10, lines 5-7).

In order to achieve the goal of having the polymer adhesive intimately contact the individual fibers in the tufts,

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[i]t has been found that lower viscosity adhesives can be more readily pressed into the void spaces between the fibers in the yarn tufts. Preferred adhesives have a melt index greater than 150, according to ASTM D-1238 @ 190 C with a weight of 2.16 Kg... (page 18, lines 7-11).

The Prior Art

In contrast, WO '806 discloses the use of thermoplastic resin adhesives which have a relatively high melt viscosity (page 7, lines 7-9), with a most preferred range of melt indices of 2-50 dg/min (page 7, lines 13-15). The patentees' state:

As a result of this high melt viscosity, the molten resin does not flow as rapidly into the secondary backing web as conventional hot melt adhesives, and more resin is available to penetrate and encapsulate the tufts in the primary backing (page 7, lines 15-20).

The exemplary data of WO '806 is directed to the use of adhesives having quite high melt viscosities: Example 1 = 10 g/10 min; Examples 2-4 = 35 g/10 min, and reports only the Tuft Bind strengths of the carpets so formed (pages 12-15). WO '806 fails to recognize the problem presented in the present application, i.e. that of individual fibers being pulled from the tufts.

In order to demonstrate the inability of the WO '806 polymer adhesives to accomplish adequate penetration and binding of the individual fibers within the carpet tufts, Applicants direct the Examiner's attention to the testing data set forth in the comparative (or "Control Examples") of our co-pending application U.S. Serial no. 10/658,082 (hereinafter the "co-pending application"; "Comparative Examples 1 and 2, pp. 24-25), wherein the polymer adhesive of WO '806 (Example 2, page 13), having a melt index of 35, was utilized to make a tufted carpet. Lisson Tretrad testing was performed on these samples and is presented in Table 1 (page 28 of the co-pending application), which indicates a significant Percent Fiber Loss and failure of the Visual Aspect test.

In contrast, the exemplary data of the present application is presented at pages 20-22, wherein a polymer adhesive of the same chemical composition as that in the co-pending Control Examples was tested, except that the polymer adhesive used in the present application had a much higher melt index of 400. In both

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Examples 1 and 2 of the present application, the Lisson Tretrad Visual Aspect testing indicated a result of "very good" and rated as "category 4".

Accordingly, it can be seen that the closest prior art examples, tufted carpets made using the polymer adhesive of WO '806, do not achieve the stated goal of the present application, i.e. "to impregnate the fiber networks of the tufts and contact the overwhelming majority of the fibers in the tufts (page 10, lines 5-7)". Applicants submit the testing data described above in the form of a Declaration under 37 C.F.R. 1.132 by Raymond J. Reisdorf (the "Reisdorf Declaration"), on even date herewith.

Scott et al. disclose a method of making a carpet which uses a foamed latex polymer backing (col. 2, lines 42-63), which is typical of the prior art materials which are sought to be replaced by the application of the presently claimed process (specification, page 1, lines 23-34). Scott et al. fail to disclose or suggest the use of low viscosity, high melt index polymer adhesives, as claimed herein.

Reith discloses a method for preparing tufted pile carpet and adhesives therefor (title), using an improved adhesive which comprises about 30-40 wt% of an ethylene-vinyl acetate copolymer having a melt index of about 100 to about 400 g/10 min. (col. 7, lines 26-31). In contrast, the present invention requires at least 85 wt% of such a low viscosity polymer adhesive and that the adhesive be a copolymer or terpolymer of ethylene and a carboxylic acid (claim 1). Reith fails to provide any basis for using higher concentrations of low viscosity polymer adhesives according to the present claims in his adhesive formulations. In fact, Reith discloses the addition of various viscosity-reducing additives, such that his adhesive composition can be "formed into a self-supporting sheet or film" (col. 7, lines 41-45). According to the present application, the molten, low viscosity polymer adhesives must receive special handling to ensure uniform coverage of the tufted primary backing (page 18, lines 17-25; claim 16).

Cross discloses a process of transferring a latex film onto a substrate (title), which process can be used to manufacture protective backing coatings for foam-backed carpet (col. 1, lines 10-15). Accordingly, the latex materials disclosed by Cross are not suggested for use in binding tufts to a primary carpet backing. Cross is essentially irrelevant to the present claims.

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As such, none of the cited references, either alone or in combination, would make obvious the claims of the present application. Withdrawal of the rejection and allowance of the claims is requested.

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In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



THOMAS W. STEINBERG
ATTORNEY FOR APPLICANTS
Registration No.: 37,013
Telephone: (302) 892-0887
Facsimile: (302) 892-7343

Dated: 11/16/04

TWS:fgl

Enclosure: Declaration of Raymond J. Reisdorf
Under 37 CFR 1.132